

REMARKS

Claims 20-37 are presently in the case and have been rejected as being obvious over two sets of combinations of patents. The claims presently in this application are all directed to the embodiment of the invention depicted in Figure 8. For the reasons stated below, the Examiner is requested to reconsider the claims and pass them for allowance over the references in this case.

Rejections Under 35 USC §103

I. The Fairchild-Schrader Combination

/The Examiner rejected Claims 20, 21, 23, 25, 26, 28-30, and 32 as being obvious over the combination of the Fairchild U.S. patent No. 5,487,222 as modified by the Schrader U.S. patent No. 4,103,430. The Examiner stated:

Fairchild discloses a spirit level as shown in figures 9-12 comprising: most of the limitations of claim 20 with the exception of the optical transfer element transferring an image to a viewing plane generally parallel to the level face, most of the limitations of claim 29 with the exception of the optical transfer element transfers an image along a

line of sight substantially parallel to the longitudinal axis of the second bubble level, and the limitations of claims 21, 23, 25, 26, 28 and 32.

Fairchild does not teach the optical transfer element transferring an image to a viewing plane generally parallel to the level face and along a line of sight substantially parallel to the longitudinal axis of the second bubble level.

Schrader discloses a spirit level employing a optical transfer image fixed to the body and extending beyond the body wherein mounting arrangement (figure 4, column 3, lines 17-35) allows for 360 degree rotation in order to allow the level to be accurately read at off axis reading angles and from a number of different viewing positions (column 2 lines 35-63 and 20-24) such as in a confined space. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optical transfer element, taught by Fairchild, to accommodate a 360 degree rotation, as taught by Schrader, in order to increase the versatility of the optical transfer image to read at other angles accurately throughout the 360 degree range.

With respect to the optical transfer element transferring an image to a viewing plane generally parallel to the level face and along a line of sight substantially parallel to the longitudinal axis of the second bubble level, as claimed by Applicant: As stated above, Schrader discloses a 360 degree rotation such that the mirror can be positioned to read at other angles accurately. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to orient the optical transfer element, taught by Fairchild as modified by Schrader, at a viewing plane generally parallel to the level face and along a line of sight substantially parallel to the longitudinal axis of the second bubble level at bubble since this is one of the angles included in a 360 degree rotation and in order to allow the user to accurately read plumb in a confined space.

Response

With respect, for the following reasons, it is submitted that the Examiner is incorrect in his reasoning above because the Schrader patent can not operate the way the Examiner says and because it would not be obvious to combine the references since there is a teaching away from such combination.

A. The Present Invention

The present invention is for a unique spirit level that has a level bubble vial for measuring the level of a generally horizontal surface and a plumb bubble vial for measuring the plumb of a generally vertical surface. When the level face of the spirit level is in contact with a vertical surface being measured the viewing of the plumb vial is accomplished by looking at that surface instead of the viewer having to place his or her head against the surface and viewing the plumb vial at a plane parallel to that surface. None of the applied references disclose this concept.

In this patent application, the claims to the embodiment of the invention for which a patent is being sought claims an optical transfer element, claimed as a mirror in dependent Claims 23, 30, and 34 and as a prism in dependent Claim 27, that extends

beyond the body of the spirit level. This is shown in Fig. 8 of the drawings and is described in the application as having the advantages of being capable of being retrofitted onto existing levels and of being an accessory for use with a conventional level.

B. Legal Standard of Obviousness Rejections

Applicants respectfully traverse the rejections because all three prongs for a *prima facie* case of obviousness have not been established for each of the rejections. Specifically, one of the references does not disclose a mirror mounting that is operable as suggested by the Examiner, and there is a teaching away from the combination of references and one of ordinary skill in the art would have no motivation to combine the cited references to arrive at the presently claimed invention.

The standard of patentability in obviousness rejections under 35 USC §103 is applied by first determining the scope and content of the prior art; then ascertaining the differences between the prior art and the claims considering the claimed invention as a whole; then resolving the level of ordinary skill in the pertinent art; and finally evaluating any evidence of

secondary considerations. Graham v. John Deere Co., 383 US 1, 148 USPQ 459 (1966).

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) that some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all the claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (CCPA. 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. See Ex parte Clapp, 277 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. Id. at 974.

C. Argument

1) The Fairchild Patent Teaches Away from using a plumb vial with a mirror.

In the Office Action, the Examiner combined the second embodiment in the Fairchild patent (Figs. 9-12) with the Schrader patent and rejected independent Claim 20 and certain of other claims dependent thereon. The Fairchild patent discloses a combination level 10 that can be used to measure local plumb and level measurements of surfaces and as a transit type instrument to determine level at a remote location. It discloses two embodiments and in its second embodiment level 10 is comprised of a housing 14 containing three bubble vials, a plumb vial 26 mounted at a distal end portion, a first level vial 24 mounted at a central portion, and a second level vial 108 mounted at a proximal end portion. The top portion of the level housing 14 has a sighting groove 102 with a sighting bead 104 at the distal end thereof. As clearly seen in Fig. 11, the second level vial 108 mounted at the proximal end is covered by a flip-out mirror assembly 114, which when in the operative position as shown in Fig. 11, permits the user to adjust level 10 to a level

orientation by simultaneously looking at mirror 110 while sighting down groove 102. See e.g. Fig. 12.

The first embodiment of the Fairchild patent also has three bubble vials, but the proximal bubble vial is a plumb vial. This embodiment uses a different means (an internal telescope with a split screen sighting configuration as shown in Fig. 8) to simultaneously determine both the level of housing 14 from a central level bubble vial and the distant object to be measured.

Thus, the Fairchild reference teaches one to use a proximal end plumb bubble vial when the embodiment uses a split screen telescope and a proximal end level bubble vial when a flip-out mirror assembly is used. Because the purpose of the second embodiment of the Fairchild reference would not work for the stated purposes (distance leveling) if a proximal bubble vial were a plumb vial, the patent teaches away from a combination with any reference (or the present invention) that uses a plumb bubble vial in combination with a mirror. Therefore, this patent clearly teaches that if a mirror device is being used, it must be used with a level bubble vial and not a plumb bubble vial.

The present invention as claimed, on the other hand, is expressly dedicated to reading a plumb bubble level by looking

directly at the surface being plumbed (i.e. the line of sight of the observer's eye is perpendicular to the surface being plumbed). Therefore, contrary to the Examiner's statement in paragraph 2 of the Office Action that the only element not disclosed in the reference is the plane on which the bubble image is seen, there is the most significant difference that the mirror device can only be used with a level bubble vial and not with a plumb bubble vial. Consequently, it is submitted that the Fairchild patent cannot serve as the principle reference in the combination of references used to reject Claim 20.

2. The Schrader viewing device cannot be combined with the Fairchild device to form the virtual hybrid as stated by the Examiner.

The Examiner correctly described the Schrader reference as disclosing a hinged mirror assembly 10 that can be removably mounted onto a bubble vial housing of a carpenter's I-beam level 11 so that a vial in level 11 can be viewed from an "off axis viewing." The detached view of mirror assembly 10 is depicted in Fig. 4. The patent also teaches that the mirror 56 of assembly 10 can be rotated. The principal purpose of mirror assembly 10 is to provide a removably attachable viewing member for a

carpenter's I-beam level that will add contrast and illumination to assist in accurately reading the bubble of a bubble vial installed in the level. As stated in the patent, "When utilized to improve the reading of the level in a relatively dark and confined space, the level is first positioned in the desired location and the mirror's position adjusted to enable the level user to see the bubble region." Schrader patent Col. 3, lines 60-64.

There are generally two main configurations of level bodies, an I-beam body as depicted in the Schrader patent and a hollow box shaped housing as depicted in the Fairchild patent. In order for the Schrader assembly 10 to be removably attachable, assembly 10 uses a U-shaped mount that fits above and below the level island (such as island 12 in the Schrader patent) in an I-beam type level. The U-shaped mount is comprised of an upper support member 34 and a lower base member 25 that are rigidly connected together with a post 30 receiving a slot 37 of upper support member 34 and a thumb screw 40 squeezing the sides of slot 37 into contact with post 30.

However, as stated above, the Fairchild device is a box shaped level and does not have any vial islands as are present in

an I-beam type of level. Moreover, the Fairchild device requires a box shaped level so that it can accommodate the sighting features that are an integral purpose of the device in either the first or the second embodiments. There is no suggestion in the Fairchild patent, let alone the requisite teaching, to change the Fairchild box shaped level into an I-beam type of level.

Therefore, it would be impossible, as suggested by the Examiner, to "modify the optical transfer element taught by Fairchild, to accommodate a 360 degree rotation, as taught by Schrader...." There is simply no teaching of combination of the two devices disclosed in the references.

3. Conclusion.

Accordingly, for the foregoing reasons, the rejections of independent claim 20 and those claims dependant thereon are traversed, and reconsideration of their patentability over the Fairchild-Schrader combination are respectfully requested.

II. The Schrader-Anderson Combination

The Examiner rejected Claims 20, 22-26 and 28-37 as being obvious over the combination of the Schrader U.S. patent No.

4,103,430 as modified by the Anderson U.S. patent No. 3,064,535.

The Examiner stated:

Schrader discloses a spirit level comprising at least a second bubble vial with the limitations as claimed, the body being of metal allow (column 25-26), an optical transfer element (10) fixed to the body and extending beyond the body, the optical transfer element being a mirror (56), the mirror being detachable, the mirror being hingedly attached to the body. Schrader discloses the optical transfer image fixed to the body and extending beyond the body wherein the mounting arrangement (figure 4, column 3 lines 17-35) allows for 360 degree rotation in order to allow the level to be accurately read at off axis reading angles and from a number of different viewing positions (column 1, lines 35-63 and 20-24) such as in a confined space.

Schrader does not teach a first elongate bubble vial and a first bubble level with the limitations as claimed, and the optical transfer element transferring an image to a viewing plane generally parallel to the level face and along a line of sight substantially parallel to the longitudinal axis of the second bubble level.

Anderson discloses a spirit level having a first elongate bubble vial and a first bubble level with at least one second bubble vial. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to add the first bubble vial and bubble level, taught by Anderson, to the spirit level, shown by Schrader, in order to allow the user to measure horizontal in addition to plumb.

With respect to the optical transfer element transferring an image to a viewing plane generally parallel to the level face and along a line of sight substantially parallel to the longitudinal axis of the second bubble level, as claimed by Applicant: As stated above, Schrader discloses a 360 degree rotation such that the mirror can be position to read at other angles accurately. Therefore, it would have been

obvious to one of ordinary skill in the art at the time of the invention to oriented the optical transfer element, taught by Schrader, at a viewing plane generally parallel to the level face and along a line of sight substantially parallel to the longitudinal axis of the second bubble level at bubble since this is one of the angles included in a 360 degree rotation and in order to allow the user to accurately read plumb in a confined space.

Response

A. The Present Invention

The description of the present invention set forth above is incorporated herein by reference.

B. Legal Standard of Obviousness Rejections

The discussion about the legal standard of obviousness rejections set forth above is incorporated herein by reference.

C. Argument

1. The Schrader viewing device cannot be combined with the Anderson device to form the virtual hybrid device as stated by the Examiner.

The Schrader patent has been discussed above, and such discussion is incorporated herein by reference.

The Anderson patent discloses an attachment 21 for a conventional I-beam type of level 10 that converts the level into a transit level, much like level 10 in the Fairchild patent discussed above. Accordingly, level 10 includes an elongate housing 12 that contains a plumb bubble vial 13 at each end portion and a level bubble vial 14 in the center portion. Attachment 21 includes a frame 15 attachable to level 10 and which in turn includes a mirror mounting assembly and a mirror 23 that is pivotally connected to the mounting assembly.

As stated above the purpose for mounting attachment 21 is to convert level 10 to a transit level. Consequently, as argued above, attachment 21 can only be used with a level bubble vial so that the user (shown as an eye 31 in Fig. 1) can simultaneously sight down the body of the level and also check to see that the level is itself level. See the two arrows from eye 31 in Fig. 1. Although it may be theoretically possible, *arguendo*, that the Schrader attachment can be used with the Anderson level 10 instead of the device depicted in the patent, there is absolutely no teaching that it would be usable with either of the plumb bubble vials 13. To do so would completely

defeat the entire purpose and teachings of the Anderson patent, which is to convert a standard level into a transit level.

Accordingly, the Examiner's statement that it would be obvious to combine the two patents and produce a hybrid device similar to the innovative plumb bubble vial viewing feature claimed in the present application is respectfully traversed.

2. Conclusion.

Accordingly, for the foregoing reasons, the rejections of independent claim 20 and those claims dependant thereon are traversed, and reconsideration of their patentability over the Schrader-Anderson combination are respectfully requested.

III. The Schrader-Anderson-Lange Combination

The Examiner rejected Claim 27 as being obvious over the Schrader-Anderson combination when further modified by the teachings of the Lange U.S. patent No. 3,167,864. The Examiner stated:

Lange discloses a spirit level wherein a prism is preferred over a mirror since silver coatings tend to deteriorate (column 2, lines 9-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the optical

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transfer device, taught by Schrader, by using a prism in place of a mirror, as suggested by Lange, in order to prevent deterioration of the mirror form affecting the transferred image.

Response

The rejection of Claim 27 is respectfully traversed at least for the same reasons set forth above, and incorporated herein by reference.

Conclusion

Accordingly, for the foregoing reasons and arguments, it is submitted that this case is now in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

By:



Harold L. Novick

Registration No. 26,011

Customer No. 20529

Date: April 5, 2006
Nath & Associates PLLC
112 South West Street
Alexandria, VA 22314
Tel. (703) 548-6284